REPORT OF THE

CREDIT FOR EARLY ACTION TABLE

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PREFACE

This is a report of the Credit for Early Action (CEA)Table, one of the expert, multistakeholder groups established under the National Climate Change Process and reporting to the National Air Issues Coordinating Committee – Climate Change (NAICC—CC). The report provides a framework for considering the possible elements of an early action credit system including baseline protection, credit creation and credit use. The report identifies policy and program issues, presents options for the design of elements of the system, and discusses some of the pros and cons of these options. Where appropriate, the report provides direction with respect to the design of each element and analytical gaps.

The Table has dealt with various potential elements of the system. For example, the Table has assessed the broad options for baseline protection (Chapter 3). Most of the design issues, however, have been considered in the context of the credit component as set out in Chapter 4, including, for example, baseline and credit, and bounty as a means for creating credits. The Table also had considerable discussion of credit uses. However, Table members have only begun to have discussions about how each of these elements might fit within an integrated system. Given the interdependencies among the elements, the Table was reluctant to develop design recommendations in the absence of any analysis of integrated options.

This report reflects the work of the CEA Table to January 1999. The Table is continuing its work and will prepare a final report by May 31, 1999, focusing on voluntary credit trading as directed by the NAICC--CC.

The views expressed in the report are broadly representative of the views of members of the Table. When necessary, however, other views have been noted as recommended in the guidelines provided by the National Climate Change Secretariat and agreed to by the Table. Views expressed by members of the Table are those of the individuals and not the governments, organizations or companies with whom they are affiliated. A glossary has been included as an annex to the report. The definitions in the glossary are intended to make the report more readable, not as a definitive source of terminology.

The work of the Table has been carried forward through vigorous discussion of the issues, good spirited dialogue and debate, and a genuine commitment to meet the expectations of NAICC-CC and Ministers. The workload has been very heavy for those involved in this work in addition to all their regular responsibilities.

1.0 INTRODUCTION

1.1 MANDATE OF THE TABLE

On April 24, 1998, at the Joint Meeting of Federal, Provincial and Territorial Ministers of Energy and Environment (JMM), Ministers "agreed to establish by early 1999 a system for crediting verifiable early actions to reduce greenhouse gas emissions against any future emissions obligations". The Table was created to advise governments on a system.

The specific mandate of the Table is "to assess options and to recommend program designs and implementation plans for an early credit system for Canada, to be in place by early 1999". The Table was directed to examine, among other things, the following issues: definitions; start dates; banking; baselines; offsets; reporting; registration; certification and validation. The Table was asked to draw on the experience of the two Canadian pilots – the Greenhouse Gas Emission Reduction Trading (GERT) Pilot and the Pilot Emissions Reduction Trading (PERT) Project. The Table was instructed to prepare a final report in December 1998. The complete Terms of Reference of the Table are in Annex A.

The Table is comprised of some forty individuals from a wide cross-section of interests and expertise. Annex B is a list of the membership, including alternates, and their affiliations. The Table also provides for second tier participation. Second tier participants are on the Table's mailing list but did not normally participate in Table meetings.

1.2 PREPARATION OF THE REPORT

This report was based on the collective and individual contributions of the expert members of the Table over the last seven months. Internal Table discussion papers on a number of issues were prepared between meetings and provided a means of preparing for discussions at the Table. In addition, the Table commissioned three studies:

- *Linking a Credit for Early Action Systems to the National GHG Inventory*
- *Survey of Early Credit Systems Outside Canada*
- *National Climate Change Process - Quantifying Greenhouse Gas Reductions*

These studies are available from the CEA Administrative Assistant - Danielle Parent (danielle.parent@ec.gc.ca; 819-953-9429).

In addition, the Table, under contract prepared a primer on voluntary trading and recently issued a contract for an options paper on voluntary credit trading.

The Table did not conduct any public consultations or formally engage other Tables beyond discussions that took place at the meetings of the Integrative Group. However, the CEA Table has members who also participate on a number of the other Tables. Though the Table had planned and budgeted for a modest workshop to broaden discussions beyond the members of the Table, this has so far not been possible.

2.0 OVERVIEW OF CEA SYSTEM

2.1 PURPOSE

The Government of Canada has signed the Kyoto agreement, with a view toward potential future ratification. Canada's GHG emissions have grown by approximately 10 % from the 1990 base of 601 million tonnes per year. Current "business as usual" projections could result in emissions that are approximately 140 to 185 million tonnes per year above Canada's international obligations by 2010. The consequences of this trajectory could create a national liability of $1.4 to $5.6 billion dollars annually[1].

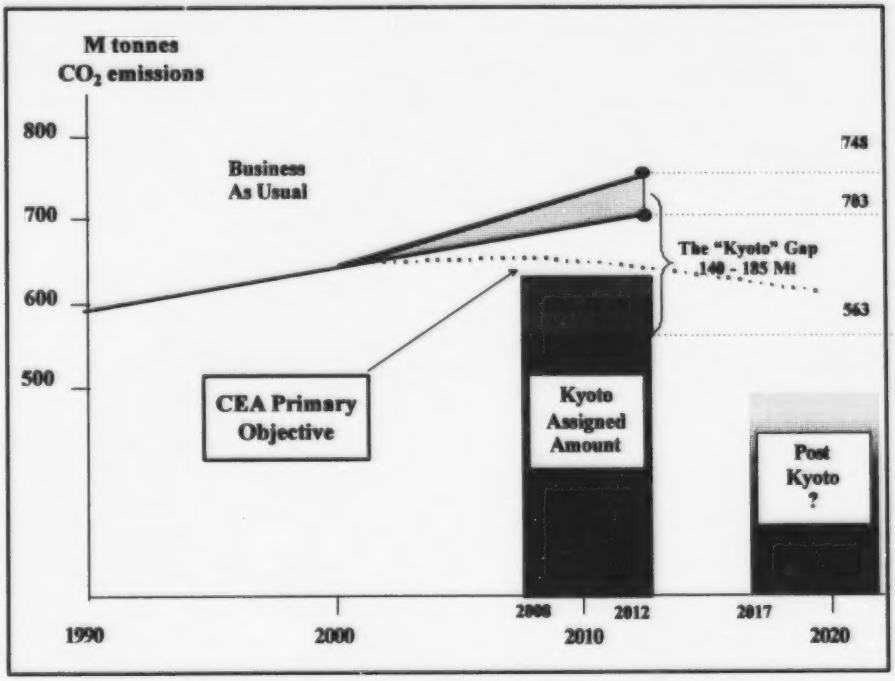
As Ministers noted in their April 1998 decision, "by encouraging early action, Canada's ability to meet its obligations under the Kyoto agreement is facilitated." Credit for early action is based on the notion that there are low-cost actions that can be taken by entities to reduce their GHG emissions and that entities would take such actions right away if the right conditions existed. Generally, it is believed that providing incentives and removing possible penalties for such "early actions" will allow for a smoother and less-costly adjustment toward the Kyoto emissions reduction target (i.e., "bending the curve" toward lower national emissions). Figure 2.1 illustrates how credit for early action could contribute to meeting Canada's greenhouse gas reduction obligations.

Early actions to reduce greenhouse gas emissions could also help ease the transition for the Canadian economy to a possible carbon constrained future and help position Canada to take advantage of potential global economic opportunities. Indeed, a domestic credit for early action system could support efforts by Canadian companies to take advantage of opportunities to invest in projects under the Kyoto Protocol's international emission trading (IET), Joint Implementation (JI), and Clean Development Mechanism (CDM), and in so doing lower their net emissions and address longer term technology change.

In addition, there are other environmental benefits that come with reduced greenhouse gas emissions. For example, by reducing CO_2 in many cases we reduce other emissions that contribute to urban smog. Early actions can also provide important environmental benefits by reducing greenhouse gas emissions earlier than would otherwise be the case. A CEA program will encourage industry to take these early steps.

[1] This estimate is based on an average cost of between $10 and $30 per tonne.

Figure 2.1 Credit for Early Action – "Bending the Curve"



Most Table members believe that a system that provides credit for these early actions is necessary to make early action investments more attractive – so that emitters are confident that delaying action to reduce emissions is not advantageous. Investors are looking for governments to provide credit for these early actions against future obligations.

However, the development of a CEA system raises a number of key policy and implementation issues that have not yet been resolved. These include:

- investor certainty - An announcement that the government will introduce a credit for early action system, without specifying the detailed rules for implementation, could lengthen the period of uncertainty for investment decisions that a credit for early action system was originally intended to reduce;

- constraints on future policy options - The design of any credit for early action system could define or limit key aspects of the future system (e.g., the design of a future mandatory tradable permits system), and thus constrain future policy options;

- legal and financial liability - Several of the possible approaches to CEA could also generate significant and unplanned future legal and financial liabilities for governments (e.g., allowing use of credits against taxes owing or for preferred access to future incentives or subsidies); and

- costs - Administrative and transaction costs with several of the possible CEA approaches reviewed in the report would likely be high and would effectively limit participation to large firms.

It is not surprising, given these general difficulties with any generalized approach to credit for early action, that the Table was unable to resolve all of these issues. Alternative approaches to credit for early action were raised which focus on baseline protection and specific incentives to early action.[2] Furthermore, although there is no example of a functioning credit for early action system in place, several options are being explored in the U.S.[3]

2.2 GOALS AND PRINCIPLES

The Table developed a "Statement of Goals and Principles" that was endorsed at the JMM in October 1998.

The credit for early action system should be designed to:

1. provide immediate incentives to expand and accelerate the early reduction of GHG emissions;
2. reduce future costs of meeting Canada's GHG reduction obligations;
3. generate standard, measurable GHG credits; and

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[2] One member suggested the following approach be considered:

- A general statement by JMM Ministers to take into consideration baseline data (where the baseline is derived from actual, not-business-as-usual, emissions) against future emissions obligations;
- A process, linked to the Environment Canada national GHG data inventory or other provincial inventories, for firms and other entities that would like to receive future consideration of their baseline, to determine their actual emissions from now forward (and, possibly, for the period back to 1990);
- A recognition that a "generalized" approach to crediting early actions is costly, cumbersome and constraining, and that targeted credits for particular actions, assets or technologies will be examined through the review of the options developed by all Issue Tables in the summer of 1999 (and selected options could then be announced as part of the climate change strategy in December 1999).

[3] There is currently a bill within the U.S. Congress that provides a framework (the rules and credit uses have not been defined) for a credit for early action system. The bill is not expected to move quickly through the U.S. legislative process.

4. provide a basis for investment in GHG emission reductions through clear definitions of the options for use of credits.

The guiding principles for the design of the system are:

1. the system will be simple
2. the system will be cost effective
3. the system will facilitate trading
4. the system will include eligible reductions occurring since January 1, 1990
5. the system will encourage broad participation from all sectors, sources and regions
6. the system will be fair, equitable and transparent
7. the CEA system and other regulatory, fiscal and economic systems will be compatible
8. the system will create value for users
9. the system will address eligible sinks and sequestration
10. the system will regularly measure, monitor and report contribution that early actions (taken under the system) make to meeting Canada's GHG obligations

Subsequent to the October JMM, several members of the Table proposed the following additional principles:

- same action, same credit – the same action or same project would receive the same credit regardless of where that action took place;
- sharing of the atmospheric resource; and
- one tonne of reduction equals one tonne credit.

The Table discussed these principles, noting that they could have major implications for burden sharing and effectiveness, but was unable to reach a consensus on them.

A number of Table members also proposed that the design of a credit for early action system should be considered within the context of three basic objectives:

- the quantity of reductions being sought between now and 2008;
- the number of participants expected in the system; and
- the variety of sources or sectors that the system will cover.

The Table discussed the first objective and while there was general agreement that different designs could lead to different levels of reductions, the Table did not discuss tonnage objectives in any detail or specifically build this objective into its evaluation. Further, while the Table recognized the trade-off of different design options in terms of complexity and cost, the Table focused on designing a system that provided for a broad range of participation and coverage – consistent with the original principles set out above.

2.3 BASIC ELEMENTS OF THE SYSTEM

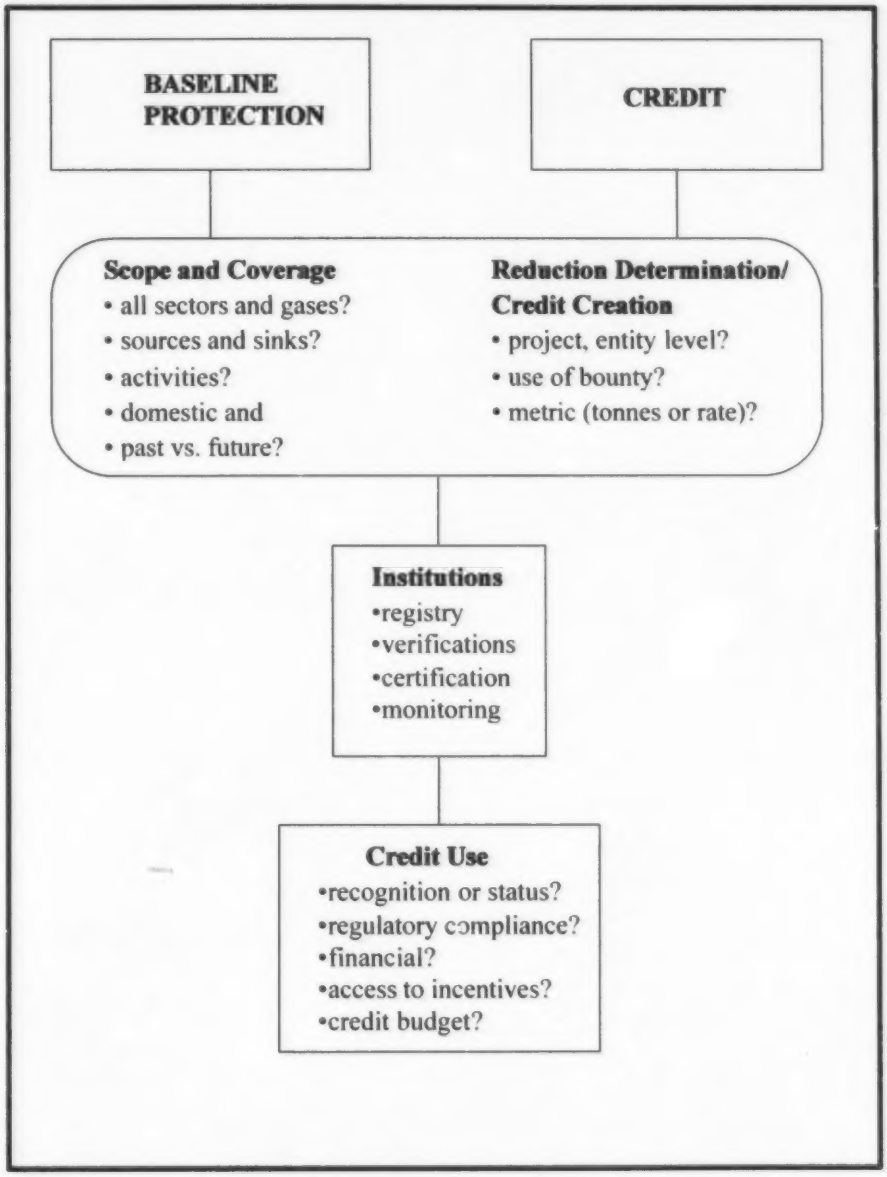
A system, according to the definition agreed to by the Table, is "a compilation of the organization, procedures, processes and resources required for developing, implementing, reviewing and maintaining the goals of credit for early action". Such a system could be comprised of two components:

- baseline protection, which can be designed to ensure emitters do not receive a lower allocation should a future policy use historic emission baselines as a means of allocating allowances or permits (see Chapter 3); and,
- credits that could be banked, traded and eventually used towards, for example, a future reduction obligation. It is this component of the system that could involve the development of a commodity market. The commodity created is carbon credits or certificates (see Chapter 4).

The two components are linked by common elements and issues as shown in Figure 2.2, except for "credit" use which is unique to the credit component of the system:

- scope and coverage – Are all sectors included? For example, can individual households apply? Are both sinks and sources included? Are all greenhouse gases included? How are past reductions (pre-1999) treated relative to future reductions?
- reduction determination and credit creation – What is the methodology for determining the amount of greenhouse gas reductions and credit? Is it, for example, against a baseline of emissions or a schedule of actions (e.g., a bounty schedule)? If it is a baseline, is it a historical baseline, "business-as-usual" forecast, or some other method? Is the baseline measured in absolute terms (i.e., tonnes of greenhouse gas emissions) or is it a standard or rate of emissions (e.g., tonnes of greenhouse gas emissions per unit of output)?
- institutions – What is the registry, administrative, reporting, monitoring, verification, and certification infrastructure necessary to implement the system? The report does not examine any institutional issues since the Table has not completed any work in this area.
- credit use – What are the range of possible uses to which a credit might be put in the future? For the credit to have value to investors – and hence for there to be an incentive to invest in early actions – the credit must have a use. Possible uses include: recognition; conversion to a permit under a regulated permit trading regime; contribution towards a regulated emission reduction; offsetting a tax liability; access to financial incentives.

Figure 2.2 Basic Elements of a CEA System



In the course of analysis, and throughout discussion of possible design recommendations, it became clear to the Table that establishing a credit for early action system was a complex undertaking that would take time to complete. There were no models to follow. The existing voluntary credit trading pilots (GERT and

PERT) and Canada's Climate Change Voluntary Challenge and Registry (VCR) offered a useful starting point but did not assist in dealing with some of the more fundamental issues related to credit creation and credit use. Moreover, each of these took a fair amount of time to develop and each continues to evolve as participants and governments gain experience. It was for these reasons that the Table undertook to identify and assess options for moving forward in a more phased fashion (see Chapter 5).

The Table also recognized the interdependencies among the elements of a credit for early action system and that a decision on any single element was difficult outside the context of an integrated proposal . For example, the extent to which the method for calculating emission reductions for credit creation needs to be rigorous may depend, in part, on how those credits could be used. If the credit can be used against the Kyoto commitment, then it would be more important to ensure that the credit was for a real and incremental reduction. At the same time, a more rigorous approach could place a practical constraint on participation. These are issues that will need further analysis and discussion.

3.0 BASELINE PROTECTION

3.1 INTRODUCTION

Baseline protection is a means of removing a disincentive to early actions to reduce greenhouse gas emissions. The disincentive could be implicit in the design of a future strategy. Early action undertaken now to improve energy efficiency or to reduce emissions will lead to lower baseline emissions and/or higher efficiency benchmarks. These levels could be used to determine future allowance allotments or performance standards. Canadian companies want protection from future policies that do not account or take into consideration early actions (thus, the term "Baseline Protection").

An entity's baseline or reference line is the stream of historic and projected emission levels prior to an entity undertaking action to reduce its greenhouse gas emissions. The simple mechanics of undertaking an early action reduces emissions in the future, and results in a lower baseline.

While providing baseline protection (BP) reduces the level of uncertainty, it by no means eliminates uncertainty. BP says nothing about whether or not Canada will accept a specific commitment such as the Kyoto Protocol. It also says nothing about whether a specific policy instrument will or will not be used in the future. What it does say is that if a commitment is made, and if a policy instrument that uses baselines is used, then entities can be assured that their baselines will not be lowered because of early actions. BP is a conditional protection -- it only applies to those policy instruments that use baselines.

The two clearest examples of such policy instruments are emission caps, and performance standards. Under a mandatory emission cap and trade program, one of the biggest decisions involves whether permits or allowances are auctioned or allocated. If permits are auctioned, BP should not be an issue – those entities that undertake early actions would have a lower baseline, and thus would not have to buy as many permits as another identical entity that did not take early action. On the other hand, if permits are allocated on the basis of historic emissions, an entity that undertakes early action could receive fewer permits than another identical entity that did not take early action (i.e., the entity could be penalized for acting early). Providing BP would try to ensure that this did not happen.

The issue surrounding performance standards is similar – an entity that undertakes early actions would improve its energy and/or emissions performance and thus could be subjected to a higher standard if the policy instrument used that the entity's resulting energy use or emission levels as the yardstick for calculating the future target or goal. Once again, BP could protect entities from this eventuality.

It should be noted that baseline protection implies a potential shifting of a future requirement to reduce greenhouse gas emissions from participants in baseline protection to non-participants.

3.2 OPTIONS

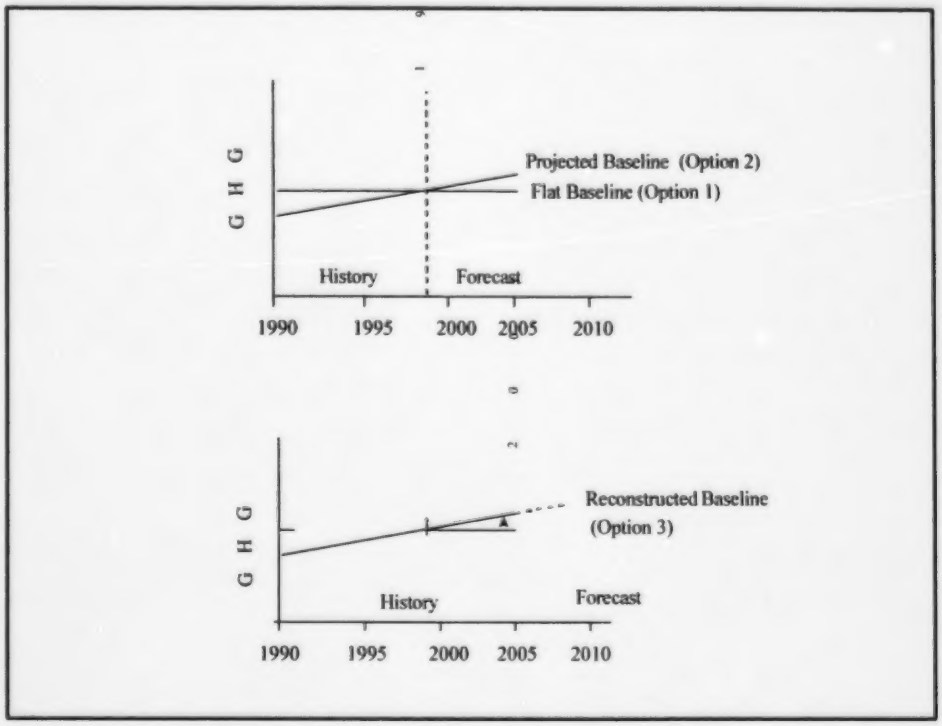
There are essentially three ways of providing BP for an entity. The first two would establish an entity's baseline today, whereas the last approach reconstructs an entity's baseline in the future. The first approach would establish a flat entity baseline set on the basis of that entity's historic emissions (could be an average of several years) prior to the introduction of early action (Flat Baseline). The second approach would establish the entity's baseline on the basis of historic and projected emissions prior to the introduction of early action (Projected Baseline). The last approach would specify a historic starting point from which an entity could reconstruct its baseline with verifiable reductions achieved through early actions (Reconstructed Baseline). The three approaches to establishing baselines are shown graphically in Figure 3.1.

The time dimension for calculating an entity's baseline has important implications for the implementation of BP. Options 1 and 2 establish an entity's baseline in the near term – thus, the entity is certain about its future baseline. The baseline in the third option is not actually constructed until after the future policy is announced. This approach outlines how an entity baseline will be determined, but does not allow for the calculation of the baseline until the time of reconstruction.

Option 1 - Flat Baseline

Although Option 1 is by far the simplest approach, it is also the least accurate means of providing baseline protection. It would provide reasonable protection for those entities whose emissions are not changing over time, but would be inadequate for those entities whose emissions are changing. There would be some costs associated with collecting the historic information, but these costs would be relatively less than for the other options. This approach is the least subjective – i.e., it is based upon actual, historic data. Option 1, like Option 2, provides certainty today about an entity's future baseline. In addition, it would likely provide the highest level of participation. On the other hand, this option does not recognize growth, nor does it provide for new entrants or mergers into the system. Of the three approaches it is likely the least effective way of protecting an entity's baseline. In fact, there are likely cases where an entity may be worse-off given this form of BP. It also limits future policy choices by not accounting for growth. For those companies with accurate statistics, however, it remains a practical option.

Figure 3.1 Baseline Protection Options



Option 2 - Projected Baseline

Option 2 has early action built into the projection. It would be able to handle new entrants and mergers. It does take into account the likely path of future emissions. That being said, this approach would require a standardized methodology for projecting future emission to ensure equal treatment. It is clearly more complex than Option 1 and it is the most subjective of the three approaches (based on less actual information). It would be difficult to assess the accuracy of the projections, and could lead to gaming.

Option 3 - Reconstructed Baseline

The last option would likely be most compatible with the potential "credit" system. The onus of proof is placed on the entity itself – it decides whether or not it wants to participate. Overall, this approach provides the most accurate account of potential

future emissions excluding early action. It could allow for third party verification of reductions associated with early action. However, it is more complex than Option 1, although likely to be less complex than Option 2. For those entities which participate there could be a substantial information cost. It could also involve costs associated with verification. It would likely require some formal approval process.

3.3 DESIGN ISSUES

Absolute vs Rate

Baseline emissions could be calculated on the basis of a rate (emissions per unit of output) rather than an absolute emission level. Doing so would help remove some of the concern about how the approach handles growth, particularly with respect to Option 1. However, it would add an additional level of complexity and uncertainty. Option 3, the reconstructed approach, would account for growth without the added complexity of measuring emissions per unit of output.

Data Availability

Data availability is a major consideration in determining when and how BP could be implemented. In order to grant BP, detailed emission data are required at the entity level. In many instances this historical data does not exist, and cannot be created. Although entities could begin to collect this type of information, there may be significant costs involved. Whether the benefits of receiving BP outweigh the cost of collecting the information needed to apply BP is a decision that emitters would make.

Baseline Protection for Past Action

The Table agreed that baseline protection for actions dating from 1999 forward was absolutely necessary to remove a potential disincentive to early action. They also agreed that baseline protection for actions in the 1990 to 1998 period was necessary if the system were to ensure that entities which took action in this period are not prejudiced by having taken such action. However, some members of the Table argued that baseline protection for the 1990 to 1998 period was problematic. A particular concern was raised with respect to double benefits.

3.4 CONCLUSION

The Table is supportive of governments providing baseline protection for early action but considers this insufficient to meet the goals of the credit for early action system.

The system should also include the credit component for early actions that reduce greenhouse gas emissions.

4.0 CREDITS

4.1 SCOPE AND COVERAGE[4]

Scope and coverage defines the boundaries for the credit component of the system. The design elements related to scope include: gases; sectors; activities (treatment of sinks, reductions from direct and indirect actions, and avoided emissions); and international credits.

4.1.1 Gases

Should the system include all six of the greenhouse gases covered by the Kyoto Protocol - carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6)[5]?

Two basic options have been considered: include all six gases from the outset; and, include only CO_2 from energy initially and over time expand coverage to include the other five gases.

Arguments in favour of a staged approach are primarily based on the concern that the "engineered" substances (HCFCs, PFCs, SF_6) are difficult to measure and to verify. In addition, it is recognized that the staged approach would be simpler to manage and easier to implement.

On the other hand, the staged approach could reduce the effectiveness of the system by delaying opportunities to take advantage of the high global warming potential of the other gases, and discouraging participation. It may also be seen as contrary to the principle of fairness and equity. The problem of quantification and verification of an emission reduction of any of the gases could be addressed through discounts or through the application of a less rigorous quantification system (e.g., the bounty schedule discussed below).

[4] Note that 'gases' and 'sectors' also apply to the baseline protection component of an early action system.

[5] Canada has targets for CO_2, CH_4 and N_2O based on 1990 emission levels, and may select either 1990 or 1995 as the base year when setting targets for HFCs, PFCs and SF_6.

The Table is in general agreement that the system should include all six Kyoto gases from the outset. The means for including all six gases should be reviewed as the specific rules for implementation are developed.

4.1.2 Sectors

Should participation of entities in the system be restricted, at least initially?[6]

A number of options were considered: limit participation to a few key sectors; limit participation to the larger emitters (i.e., to entities with emissions above some minimum level); and place no restrictions on participation.

Restricting participation in the system could simplify administration and could result in lower transaction costs. In addition, such restrictions may provide a way to gain experience with crediting and trading that could be used to expand and improve the system.

On the other hand, restrictions based on entity size or emission levels may bear little relation to the size or cost-effectiveness of the available reductions and could be seen as unfair.

Overall, the Table concluded that there should be no restrictions on the participation of entities in the CEA system. This issue should be reviewed as the detailed rules for implementation are developed.

4.1.3 Activities

Treatment of Sinks

Should the system include sinks?

A broad range of options related to the inclusion of net sinks were considered (as independent choices, combinations or as progressive stages):

- include carbon from reforestation, afforestation and deforestation activities initiated after 1998 (or 1990) and accumulated prior to 2008 (or until the end of the CEA system);

[6] This issue depends to some extent on whether an entity-based or activity/project-based approach is adopted.

- expand above option to include the carbon sequestration from natural regeneration following harvest;
- include activities to enhance agricultural soil carbon sinks and other sinks not currently included in the Kyoto Protocol, such as wetlands; and
- include, in a first phase, only carbon from urban reforestation activities initiated after 1990 and included in the Partnership for Climate Protection or a similar program.

Changes in greenhouse gas absorption by sinks are included in the Kyoto Protocol though a significant number of issues surrounding sinks still have to be resolved at the international level.

Accordingly, while the Table was in agreement on the inclusion of biological and non-biological sinks (reaffirming one of the principles approved by Ministers), it was generally agreed that determining how sinks should be included (and how domestic rules should be linked with international rules as they develop) will be an important design issue. A number of members emphasized that no decisions should be taken on what sinks are eligible for credit until both the IPCC and the Kyoto Protocol processes have clarified the definitions and methodologies associated with eligible sink activities.

Treatment of Emission Reductions from Direct and Indirect Actions

The Table has discussed the treatment of direct and indirect actions that result in greenhouse gas reductions.

Although the Table has yet to develop a clear definition of these actions, in general, a direct action is an identifiable measure that when implemented directly reduces emissions (e.g., fuel-switching). An indirect action is an identifiable measure that when implemented results in lower emissions beyond an entities boundary (e.g., actions that reduce the demand for electricity or increase the supply from non-GHG emitting sources of electricity, actions that improve the efficiency of a product or technology, and actions that affect behaviour and utilization of GHG emitting equipment).

Some Table members consider the distinction to be artificial, arguing that all reductions, regardless of whether they are a result of direct action at the source of emission or the result of an action by an energy consumer, should be credited provided they are real and verifiable.

Three options were considered: include only direct emission reductions; include direct emission reductions plus selectively include some indirect actions that result in emission reductions; and, include all direct and indirect emission reductions.

Both direct and indirect actions contribute to reduce emissions. However, indirect actions also involve a greater likelihood of ownership disputes and double-counting (or leakage). There would appear to be no need for *a priori* restrictions on the inclusion of indirect actions in the CEA system if a contracts-based approach to the ownership issue were adopted. This would require the courts to develop property rights conventions in the process of resolving disputes. The complex negotiations associated with this approach may, however, discourage indirect reduction activities. Alternatively, principles and rules for defining ownership could be included in the CEA system itself, narrowing the potential for disputes and the complexity of negotiations.

The Table agrees that eligible actions for credit under the CEA system should not be limited to direct actions; however, a clear definition of indirect action is required before final decisions are made to include any/all of these actions under the CEA system. Consideration should be given to the development of principles and rules for addressing issues of ownership and double-counting.

Treatment of Avoided Emissions

The Table has discussed the eligibility of avoided emissions in the CEA system. Avoided emissions result from actions that reduce emissions from an emission level that would have otherwise occurred.

Opinion was divided on the inclusion of avoided emissions as a general concept. There was opposition to the concept where the basis of a claim for avoided emissions is a decision to cancel a planned action that might have future emissions. There was general agreement that incremental renewable energy flows that remove the need for the further development of carbon intensive energy flows should be recognized. However work is needed to define rules or mechanisms for ensuring that such avoided emissions are real and that issues of ownership and double-counting are addressed in the design of the system.

4.1.4 International Credits

Should emission reductions/actions that take place outside of Canada be considered within the scope of the credit component of a CEA system? If yes, how should this activity be integrated into the CEA system?

CDM/JI certified reductions would assist Canada to achieve its Kyoto commitments (i.e., maintain budget integrity and flexibility).[7] Further, they would provide an

[7] Reductions from CDM projects achieved after 2000 can be banked for use in the first commitment period (i.e., increase our Kyoto budget). Though currently the international rules related to emission

incentive for Canadian industry to participate in this type of international activity. In addition to providing low cost reduction opportunities, it would provide Canadian industry with valuable experience in undertaking these types of projects. There are, however, incremental risks and transaction costs associated with the pursuit and development of international reductions and crediting.

There is general agreement that certified CDM and JI reductions should be included in the CEA system.

One option would be simply to treat certified CDM and JI reductions in the same manner as CEA credits.

The Table also discussed but did not reach agreement on an approach whereby governments would guarantee a minimum dollar value for CDM/JI certified reductions.[8] Reductions that are transferred to governments could be used in place of or to augment the CEA budget discussed in Section 4.5 Credit Budget. Alternatively entities may select to bank the CDM/JI reductions for their own use or transfer them to another entity.

Further work on developing and assessing options for including CDM/JI activity in the CEA system is required before any recommendations can be made.[9] This work must be closely linked with work being done by the Kyoto Mechanisms Table and other Tables.

4.2 TIMING

4.2.1 Cut-off for Eligibility

The purpose of the CEA system is to recognize those who have taken actions that move Canada closer to its greenhouse gas emission reduction obligations. Thus, it would seem appropriate to set the cut-off for eligibility in the CEA system in relation to the timing of Canada's greenhouse gas reduction commitments. Accordingly, it is generally accepted that 1990 is the appropriate reference point since it was in 1990

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reductions achieved between 2000 and 2008 from JI projects do not allow them to be banked for use in the first commitment period, the rules may be revised.

[8] Governments could limit their financial liability by capping the number of tonnes it would be willing to buy. (Governments are also potential players in the market for domestic credits.)

[9] Additional work required includes assessment of optional roles for governments (e.g., purchasing credits or facilitating CDM activities), design issues (e.g., exchange ratios of domestic-international credits), legal issues (e.g., purchase/subsidy), implementation issues (e.g., advantages of a staged approach), and the identification and assessment of other mechanisms that could facilitate the same objective.

that Canada made its first international commitment – stabilization of greenhouse gas emissions at 1990 levels by the year 2000[10].

Consequently, the table concluded that only reductions since 1990 should be eligible to receive credit. This decision is reflected in draft principles endorsed by Ministers in October (i.e., the system will include eligible reductions occurring since 1990). The Table was unable to reach consensus as to whether actions in the 1990 to 1998 period should receive credit or some other form of recognition.

The Table identified an additional issue with respect to timing -- whether reductions occurring after 1990 that were made on the basis of an action undertaken before 1990 should be eligible for credit (i.e., primarily long -term projects that extend into the 1990s and beyond).

Canada has made considerable improvements in its energy efficiency since the 1970s as a result of actions taken by governments, industry, households, etc. These improvements have also led to a corresponding reduction in the "carbon intensity" of our economy. The changes have been structural and lasting. To the extent that these reductions are ongoing beyond 1990, it can be argued that they should be eligible for credit. Verification of these reductions would prove to be particularly difficult given the serious data constraints and problems in defining the baseline against which the credits would be calculated. More fundamentally, including reductions from actions taken before 1990 would appear inconsistent with the goals and principles adopted by the Table and the policy direction set by Ministers which calls for a system that will accelerate actions to reduce greenhouse gas emissions to move Canada closer to its emission reduction obligations.

Including only reductions from post-1990 actions appears closest to the Table's Statement of Goals and Principles - "The system will include eligible reductions occurring since January 1, 1990". That being said, verification of these reductions could still prove to be challenging given the variation in the availability and quality of data. A variation that would simplify verification would be to consider only post-1990 reductions that have taken place under existing programs. This follows on the decision by Ministers at their joint meeting in April, 1998; i.e., "verifiable measures already taken under such programs as the Voluntary Challenge and Registry Program (VCR Inc.), the British Columbia-led Greenhouse Gas Emissions Reduction Trading (GERT) pilot project and Ontario's Pilot Emissions Reduction Trading (PERT) project".

[10] This commitment was formalized in the international Framework Convention on Climate Change in 1992.

4.2.2 Treatment of Past vs Future Reductions

Should verified greenhouse gas reductions that occur prior to the establishment of the Credit for Early Action system (i.e., between 1990 and the initiation of the system) receive the same credit as verified reductions that occur after the system is in place?

There are three basic options:

- give past reductions a premium over future reductions – i.e., a verified one tonne reduction receives a credit of greater than one tonne
- treat past reductions the same as future reductions – i.e., a tonne = a tonne
- discount past actions relative to future actions – i.e., a verified one tonne reduction receives a credit of less than one tonne

In addition there are other forms of providing recognition for past reductions. For example, reward for reductions taken between1990 and1998 could be made through adjustments to the post-1999 baseline from which credit is generated.

Some have suggested that past reductions warrant a premium credit on the basis that the investments or actions that generated these reductions were done so at a time when there was far greater uncertainties about the value of these reductions (i.e., the extent to which investors could get credit against future obligations). At the same time, it is generally recognized that these reductions have also tended to be at the low end of the cost curve and often result in net benefits. Providing a premium to past actions would also appear to be inconsistent with direction from Ministers and the goals agreed to by the Table – i.e., to expand and accelerate reductions. The consensus of the Table members is that past reductions should not receive a premium.

Alternatively, some have suggested that past reductions could be treated the same as future reductions. A one tonne reduction in greenhouse gas emissions is likely to produce the same environmental benefit regardless of when the reduction takes place – at least over the period 1990 to 2007. That said, there are cumulative environmental benefits from early reductions in greenhouse gas emissions. Given the variation in the availability and quality of data, however, it may be difficult to apply the same level of rigour to the verification of past reductions as future reductions, an important distinction given the importance of ensuring, as much as possible, that the reductions are "real" or "incremental". It suggests that past reductions could be discounted. Alternatively, past actions could be discounted only if the measurement and verification of the credits cannot meet the criteria set for future actions.

Some maintain that past reductions should be treated differently than future reductions. These individuals are concerned that if a limited credit budget is established, awarding credit for past reductions may limit the credit available to incent new actions that will reduce Canada's future emission levels. In addition, providing credit for past reductions could shift the responsibility and burden for future

emission reductions onto other sectors or entities. Some examples of different treatment could include discounting of past reductions, restricting past reductions to specific types of credit uses, or recognizing past reductions by adjusting credit creation baselines in the post-1999 period.

An additional consideration is that verified reductions could receive a double benefit if they could be counted towards baseline protection and credit. The Table considered a number of different perspectives on this issue. Some argued that while providing a double benefit for future reductions could be consistent with the goals of the system (i.e., to accelerate reductions), similar treatment for past reductions would not be consistent. It was suggested that if past reductions are recognized through baseline protection then they should not be eligible for credits. Others maintained that neither past nor future emission reductions should receive a double benefit, arguing that giving emitters an either/or option creates a sufficient incentive. Finally some Table members suggested that all reductions should be treated the same in the interest of fairness.

It is difficult to estimate the magnitude of past reductions potentially eligible for credit – again due to data constraints. That being said, indications are that the magnitude could be quite high. A study prepared for the Table by PriceWaterhouseCoopers provides a rough estimate of the potential claims for past reductions (1997 minus1990) -- 32 Mt.[11] If fully credited, this would represent approximately 6% of Canada's annual allocation in the first budget period budget of 563 Mt under the Kyoto Protocol. For comparison, setting 5% aside for the entire credit for early action budget has been discussed by the Table and is contained in a number of US proposals.[12]

4.3 CREDIT CREATION

[11] Note that the 32Mt estimate used above (i.e., the difference between estimated 1996/97 emissions and 1990 emissions, non-cumulative) covers reductions only to 1997 and includes only VCR members that submitted an Action Plan/Progress Report and members of the 20% Club. Most of these reductions were unsubstantiated and are not verifiable without further documentation. In addition, as the sample used in this study may not be representative, the 32 Mt may either over or under estimate reductions potentially eligible for credit. It is also important to note that the accumulated tonnage from 1990 to 1997 was estimated in this study to be 83 Mt. Readers are referred to the contract study for more information - PriceWaterhouseCoopers, Credit for Early Action Issues Table – National Climate Change Process: Quantifying Early Greenhouse Gas Reductions, Final Report, November 25, 1998.

[12] See, Ellen F. Battle Consulting, Survey of Early Credit Systems Outside Canada, Final Report Prepared for: Credit for Early Action Table – Canada's National Climate Change Process, November, 1998.

4.3.1 Baseline-and-Credit System

Baselines[13] are one of the main building blocks of any system of credits. It is against a baseline that emission reductions are quantified and credits created. The 'credit' baseline is the level of emissions beyond which reductions must occur for an emission reduction (and credit) to be created by an entity or project. It is here that one encounters the difficult issues of additionality[14] and leakage[15].

The key design issues for the baseline-and-credit system under consideration by the Table are: (1) the level of activity/reporting to be used in the quantification of emission reductions; and (2) the baseline methodologies that could be used for each level of reporting allowed.

The Table discussed three levels of activity or reporting that could be used separately or in combination as the level for baseline determination - project-level, facility-level and entity-level. Note that a facility-level baseline can be considered as a collection of project-level baselines and an entity baseline is similarly a collection of facility baselines.

The Table reviewed some options for baseline methodologies involving variations based on absolute tonnage baselines and performance standard baselines (tonnage reduction per unit of output). More detailed analysis is required.

Project level reporting of emission reductions has been used extensively in international projects under the Activities Implemented Jointly (AIJ)[16] program. In Canada the experience gained in the PERT and GERT trading pilots has been at the project level. CDM and JI are also project-based approaches.

Three basic approaches to the setting of project-specific baselines were discussed: 1) prescribed protocols - a series of standard protocols, or at least templates, would be established for use in various types of projects; 2) participants choice - participants would be free to choose/develop their own baseline(s) possibly with a points system attached to the rigor of the approach used; and 3) evolutionary protocol

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[13] The term baseline is used in a different context from baseline protection. In the latter case it refers to protecting an entity's emission baseline prior to early actions. In this Chapter it is the reference level of emissions from which credits are created.

[14] Additionality refers to the criterion of crediting reductions that would not have occurred in the absence of the incentive (i.e., the credit system). Crediting non-additional reductions (or "anyway reductions") means that less is available to incent new incremental actions that would bend Canada's emission trajectory.

[15] Leakage is a displacement of emissions from one source/location to another source/location.

[16] A good review of this experience can be found in: Status of Research on Project Baselines Under the UNFCCC and the Kyoto Protocol, OECD & IEA Information Paper by Ingo Puhl, 1998.

development - standard protocols would be developed (case-by-case) as emission reduction projects are brought into the system.

The Table discussed briefly a performance standard methodology for project-level baselines. Performance standards were suggested for three sectors: electricity; other industrial sectors and the commercial or institutional sector. For example, the performance standard for the electricity sector could be based on natural gas combined-cycle turbine (e.g., 45 percent efficiency). Any project with a lower emission factor would receive credits. The Table agreed that this approach should be considered for further evaluation.

Facility level reporting was considered of particular importance in the context of the "end-use" of credits. Any future compliance mechanism would almost certainly be applied at the facility or plant level for point source emissions.[17] Facilities/plants could be treated like a collection of individual projects that are administered as one single project. In principle, a complete series of project-specific baselines could be added together to create the baselines for a facility/plant.

Entity level baselines offer the opportunity to represent all of an organization's emissions on a rolled-up basis[18]. Two broad approaches to determining an entity-level baseline include: 1) fixed - an historic level of emissions or a declining line; and 2) variable - an emission level that is normalized for output. Many variation of these two approaches are possible including hybrid options that unite entity and project-specific approaches (e.g., establishing entity baselines as a hurdle to be met before credit could be created at the project level).

Proposals in the U.S. for credit for early action are entity-based. For example, the *Credit for Voluntary Reductions Act* (S.547) in the Senate requires absolute reductions from a chosen base period.

Six possible approaches/timing to introduce baseline methodologies in the CEA system were considered: 1) one size fits all - one 'credit' baseline would be prescribed for all sectors, 2) participants choice - each sector or entity could chose their own 'credit' baseline; 3) project-specific or project-entity hybrid - both would be allowed, 4) variable - each sector would be prescribed a 'credit' baseline during the detailed design phase; 5) evolutionary - start with project-specific baselines and develop entity baseline approaches over time; 6) phased - establish a 'credit' baseline for one type of emission source first (e.g., point sources) and develop 'credit' baselines for other sources (e.g., area and mobile sources) over time.

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[17] Emissions from point sources (e.g., a thermal power plant, oil refinery or manufacturing plant) lend themselves to environmental management programs because of the ease with which boundaries that correspond with corporate ownership and responsibility can typically be drawn around them.

[18] The performance standard/industry benchmark multiplied by output in the given year.

The Table conducted a preliminary evaluation of alternative levels of baseline establishment and reporting but with inconclusive results. Each presents its own implementation and administrative challenges. For example, a project-level approach would appear to present the highest risk of crediting non-additional reductions. Entity-level reporting raises difficult issues with respect to leakage and asset acquisitions.

4.3.2 Bounty Schedule

The bounty schedule was considered as a tool for quantifying and assigning credits in the CEA system. A bounty schedule is a limited set of "creditable actions", each with a specific quantification protocol or factor, that is used to assign credits to actions (projects or activities), not to actual emission reductions. Bounty schedule credits would be registered to owners at the point where the action occurs; however, issues of ownership and the transfer of credits would be managed within the overall CEA system.

The key issues are: 1) to determine if there is a role for the bounty schedule in the CEA system; and 2) to determine how a bounty schedule might be integrated into the overall CEA system.

A bounty schedule may be simpler to implement than a rigorous baseline and credit approach and could provide credits at significantly lower transaction costs. The development of the schedules, however, could be complex (e.g., may require the determination of project baselines) and expensive. The cost-savings would come from repeated use of the schedule.

The bounty schedule may work best as a project-specific tool, addressing a limited set of actions including: actions with small credit potential; actions where the information is sparse or of poor quality; sinks and sequestration; and actions that produce emission reductions indirectly, particularly R&D and education.

Although a bounty schedule can be a convenient way to assign credits for 'past actions', schedules could also be developed to reward actions taken in the future. For example, the schedule could accommodate the largest practicable set of the actions registered under the VCR or the pilot emission reduction trading programs in Canada.

For the future, the set of creditable actions could be selected to match the objectives for the CEA system. In some cases credits could be assigned on the basis of the action and might not accurately reflect real net reductions. In these cases the same discounting that is used to address issues such as uncertainty, leakage and double counting in other forms of credit creation could be applied to the particular item on the bounty schedule. In other cases, there may be a high degree of certainty as to the

emissions impact of an action and there would be no need to apply a discount factor.

As only a limited number of actions would be covered, and credits would be assigned in a pre-defined manner (i.e., reflecting some kind of average), issues of equity and fairness, including claims of lost opportunity by omission, will arise.

Support for the use of a bounty schedule is divided. A number of Table members believe there should be a system that provides credit for real and low-risk reductions through such a schedule. Others believe a uniform reporting and data requirement should be applied throughout the credit for early action system.

4.3.3 Over Arching Factors

Whether credits are generated through a bounty schedule or by means of a baseline and credit system applied at the project, facility or entity level, there are several overarching issues that need to be addressed in development of the system. These include:

- whether the approach to bounties or baselines should reflect special circumstances of a project, facility or entity;
- the threshold between activities or reductions that receive credit and those that do not receive credit; and
- requirements to ensure that credit given for an emission reduction activity is proportionate to the extent the activity helps Canada achieve compliance with any future international obligations.

Use of a variable baseline that is normalized for output (see section 4.3.1) is one method of accommodating entities' special circumstances, but different baselines might also be applied to entities on the basis of differences in their projected emission levels or other factors.

Whatever the approach to baselines or bounties, a credit for early action system will have to specify a threshold for generating credit. For instance, in a baseline and credit system, will the baseline be set so as to give credit for any emission reductions or only those that exceed a minimum improvement rate? If a minimum rate of emission reductions is required to generate credit, how stringent should that rate be? More stringent rates will minimize the extent to which credit is given for reductions that would have occurred in the absence of credit. However, if too stringent, entities may not have an incentive to invest in cost effective but relatively small emission reductions.

Finally, depending on how a Credit for Early Action system is designed, the credit resulting from an emission reduction activity may be out of proportion to the activity's impact on Canada meeting its international emission commitments. For instance, if creditable emission reduction activities do not extend into future international compliance periods, they will not help Canada achieve compliance. Similarly, a project might yield one tonne of emission reductions per year and be rewarded with one tonne of credit for every year the system is in place. If the system runs from 1990 to 2008 and the project is implemented in 1990 it would yield 18 tonnes of credit. If implemented in 2007 it would yield only one tonne of credit. However, both projects reduce Canada's emissions in 2008 to 2012 by five tonnes. On the other hand, the earlier project has a greater impact on the atmosphere and may provide an important early demonstration of technology. Whether credit given for projects is consistent with projects' effects on compliance will depend on a number of related issues, including: the stringency of baselines; whether credit is only given for emission reductions that are sustained into international compliance periods; whether credit is given for cumulative emission reductions; how past action is treated; and the time frame in which a credit for early action system is operative.

4.4 USE OF CREDITS

The level of incentive in an early action system – and consequently the extent of actions to reduce greenhouse gas emissions – will be a function of the uses for which the credits will be eligible[19]. If the use is a future use, potential investors will make their decisions based on the expected value of credits, making assumptions about the probability of optional future uses and values. Alternatively, if credits have immediate uses, the value will be a function of those uses.

The Table has complied a list of potential credit 'uses' (end-use options) that could be seen as having value to organizations and that might motivate them to take early actions to reduce GHG emissions under a credit for early action system.

The four broad end-use options are:
1. recognition;
2. qualification for benefit;
3. application against a future commitment (voluntary or mandatory); and
4. application against a financial obligation.[20]

Options 3 and 4 could be implemented through a voluntary agreement between governments and the emitting source, standard regulation or through a trading system.

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[19] A credit would only be used once.

[20] Baseline protection is also a use of a verified reduction.

The Table has developed an evaluation framework for assessing the environmental, social and economic impact of various uses but was unable to conduct the analysis in time for the report. Nonetheless, some preliminary considerations for each use are provided below.

Recognition

Organizations (industry, governments, individuals) would be provided with recognition for voluntary GHG reduction accomplishments (or commitments) suitable for citation in marketing materials, corporate documents and to customers and investors. Examples include eco-logos, and medals. A minimum threshold could be established that must be met before credits were created. Single criterion (e.g., organizational GHG emission reduction) or multiple criteria (e.g., life cycle reduction of GHG emissions) could be applied. No tradable commodity would be created.

Considerations include:

- provides for a more sustainable incentive than current status under the VCR;
- establishes GHG as a component of brand equity;
- to have value, the standard required for recognition would need to be challenging;
- quantification, verification and tracking requirements would not be rigorous
- implementation would be relatively easy – no legislative changes or regulations would be required; could be handled by VCR Inc.;
- could implement in the near term at relatively low cost;
- no direct monetary value to participants;
- unlikely to encourage significant new activity; and
- may not be viewed by industry/public as meeting the JMM commitment.

Qualification for Benefits

Under certain future policy conditions, an organization would be provided with early access to future government programs related to climate change. Examples include various capital cost allowance programs, energy efficiency initiatives, R&D subsidy programs, and preferred access to bilateral or CDM/JI-type arrangements.

Alternatively, the system could provide for an immediate financial benefit. For example, governments could provide a price guarantee of a fixed amount per credit (verified tonne).

Considerations include:

- could provide a clear means for investors to evaluate incentives for early action against the cost of reduction actions;
- would likely require legislative action to implement;

- unlikely to be applied against past actions; and
- fiscal impact (consistency with the user pay principle).

Application Against a Future Commitment (Voluntary or Mandatory)

Organizations would have the flexibility to use credits to meet voluntary GHG emission reduction commitments or regulatory obligations. Examples include commitments/obligations related to performance standards or emission limits.

Considerations include:

- less value if linked to a future voluntary commitment rather than a mandatory commitment;
- credits could be created before the commitment/requirement is known (banking of credits would be required);
- flexibility provided by trading could allow participants to achieve reduction commitments at least-cost and trading would provide a monetary incentive to participants;
- requires more sophisticated quantification, verification and tracking infrastructure and trading infrastructure (if trading allowed);
- regulatory changes (and possibly new enabling legislation) could be required;
- uncertainty would exist until the future commitment/requirement (if any) was specified.
- credits could be used in a transitional manner (e.g., credits could be accepted in lieu of or converted into allowances in a future cap-and-allocate program);
- credits could be earned from activity undertaken in the past;
- higher development and transaction costs; and
- limits on the number and nature of credits accepted for this end-use may be required.

Application Against a Financial Obligation

Organizations would be able to use credits to reduce a financial obligation. Until the charge (if any) is specified, the value of the credit would be determined by expectations about future charges and the time value of money. Financial obligations against which the credit could be applied include a carbon charge, emission charge or any other tax or government fee obligation related to climate change.

Considerations include:

- could result in industry meeting reduction commitments at lower cost;
- flexibility provided by trading could allow participants to achieve reduction commitments at least-cost and trading would provide a monetary incentive to participants;

- credits could be created before the exact nature of the financial obligation is known (banking of credits would be required);
- requires more sophisticated quantification, verification and tracking infrastructure and trading infrastructure (if trading allowed);
- regulatory changes (and possibly new enabling legislation) could be required;
- credits could be earned from activity undertaken in the past;
- credits could be used in a transitional manner (e.g., credits could be accepted as an alternative to paying a carbon tax);
- credits could provide an exemption to paying an environmental charge
- higher development and transaction costs;
- limits on the number and nature of credits accepted for this end-use may be required;
- may raise tax policy issues with respect to acceptance of past credits for payment against a current tax obligation;
- fiscal impact (consistency with the user pay principle).

4.5 CREDIT BUDGET

4.5.1 Introduction

A system that credits verified emission reductions must have a source against which the credits are applied (i.e., a source to debit)[21]. The source of the debit is a function of the use against which the credit is applied. For example, if the use is a regulatory obligation, then the source of the debit could be an emission reduction requirement – e.g., a one tonne emission reduction credit can be converted to a one tonne emission reduction permit. It need not, however, be a one-to-one conversion. Alternatively, if the credit can be cashed-in for a financial incentive, then the source of the debit is governments' budgets, private sector funds or a combination of both.

Since crediting early action necessitates debiting a source, the issue is whether there should be a limitation on the total amount of early action credits - a credit for early action budget, and if yes, how much?

At the October 1998 JMM, Ministers instructed the Table to consider "allocating a realistic credit budget for early action".

4.5.2 Credit Use Scenarios

There would appear to be three basic credit use scenarios under which setting a budget for early action could be considered:

[21] If the use of the credit is some form of recognition, there is no need for a debit source.

- one that assumes the credit will be used against a future regulatory obligation;
- one that assumes the credit will be cashed-in in the future for a financial incentive; and
- one that assumes the credit can be exchanged for an immediate financial incentive (e.g., credit can be cashed-in for guaranteed price).

Within the first scenario, the options are:

- set no limit on the amount of credits that can be issued and ultimately converted; and
- set a limit on the amount of credits that can be issued and/or restrict the timing of their conversion or use.

Similarly, within the second and third scenarios the options are:

- set a limit on the amount of credits that can be issued and/or the total financial budget for the incentive; and
- set no limits,

(1) Future Regulatory Obligation

The advantages and disadvantages of setting a credit for early action budget within the context of a future regulatory obligation are best examined relative to the provisions of the Kyoto Protocol.

The Kyoto Protocol assigns to each developed country a fixed greenhouse gas emissions limit to be used in the first commitment period. Canada's total allowed emissions for the period 2008 to 2012 is 2825 Mt (94% of 601 Mt times 5). Except for the Clean Development Mechanism, which rewards projects in developing countries, and perhaps afforestation provisions, the treaty at present does not provide credit for emissions reductions that occur before 2008-2012. Therefore, with these exceptions, a domestic program seeking to reward early actions through use against Canada's Kyoto obligation would need to provide these credits out of its first (or subsequent) commitment period allocations. CDM credits, in contrast, are bankable and so expand the allocation. Should Joint Implementation or afforestation projects become creditable prior to the commitment period, these would also augment Canada's allocation.

Without a limit there is a risk that an ambitious credit system would consume a major portion of Canada's commitment allocation. In addition, non-participants could be required to undertake much deeper emission reductions during the commitment period to ensure that Canada reached its reduction target. The latter would depend on the extent to which early actions are "real" and actually bend Canada's business-as-usual emission trend towards the Kyoto target.

To minimize this risk, and to ensure that enough credits are left for those who do not take early action, some of the U.S. proposals include limits on the number of credits set aside for early reductions. For example, several propose a 5% limit on the U.S. first period allocation. Applied to Canada's first commitment period allocation, this would mean a total credit budget of 141 Mt.

The disadvantage of setting a credit budget in this context is that the uptake may exceed the budget, necessitating a means of allocating the credits. One option would be to allocate the credits on a first-come/first-serve basis to reward entities that pursue early reductions more aggressively. However, this may not provide entities considering investment in emission reductions much certainty that their future emission reductions will have any value. Another option would be a pro rata allocation. If at the dissolution of the early action system the total amount of credits exceeds the budget, all credit holders would have their credits reduced on a pro-rata basis. In other words, credits would be discounted.

Another approach to incent early action, as well as determine its feasibility, would be to have governments procure a finite amount of allowances internationally to support a CEA program (see section 4.1.4). Many suggest that this has the advantage of not "mortgaging the future" that taking an allocation from the 2008 -2012 period or beyond would do.

Another approach altogether is to allow credit holders access to allocations beyond the first commitment period, effectively increasing the size of the credit budget. While this use is more uncertain for investors, it may be preferable to a discounted credit for use in the first commitment period.

(2) Future Financial Incentive

Credit holders could cash in their credits in the future for a financial incentive (e.g., fixed price per credit; offset against a carbon charge per tonne). Without a limit, governments expose themselves to a potentially major financial liability. For example, if governments were to guarantee a price based on the cost of reducing a tonne of greenhouse gas emissions, the financial liability could range from $1.4 billion and $4.2 billion.[22] Conversely, a limit may imply some discounting of credits in the future should the uptake exceed the budget

[22] This is based on an average cost of between $10 and $30 per tonne and a total emission budget of 141 Mt.

(3) Immediate Financial Incentive

An immediate financial incentive could be offered, for example, the purchase of credits at a fixed price per tonne. Setting aside a budget to provide an immediate financial incentive could accelerate investments in greenhouse gas reductions beyond what might be achieved by an as-yet-to-be determined future credit use, depending on the level of the financial incentive. The Table has not undertaken any analysis of what reductions could be achieved with alternative incentives and, therefore, what might be a reasonable budget.

5.0 CONCLUSIONS AND THE PATH FORWARD

The Table has made progress towards helping the Joint Energy and Environment Ministers meet their goal "to establish a credit for early action system in Canada by early 1999". The Table has a sound understanding of the important building blocks needed for such a system and has reached a number of conclusions with respect to some elements of a system and how they should fit together. In particular:

- baseline protection is important for removing a disincentive for early action but is insufficient to the meet the goals of the credit for early action system;
- the system should include the six greenhouse gases in the Kyoto Protocol from the outset of the system although the means of including them should be reviewed as the specific rules for implementation are developed;
- there should be no restrictions on participation of entities in the system although this should be reviewed as the detailed rules for implementation are developed;
- in principle, all sinks should be included but issues of definition and methodologies will need to be resolved (and will need to be consistent with international rules and methodologies);
- in principle, emission reductions from both direct and indirect actions should be eligible although clearer definitions are required and issues such as ownership and double-counting need to be addressed with respect to the indirect emissions;
- in principle, avoided emissions associated with incremental renewable energy flows should be eligible for credit in order to recognize their GHG emissions reduction potential; CDM and JI reductions should be included in the CEA system although further work is needed on implementation;
- reductions since 1990 should be recognized in some fashion within the credit for early action system;
- a CEA system can accommodate project, facility and entity level baselines; and
- a bounty system may have a role in the credit for early action system.

Further, the Table has identified a number of fundamental policy issues that require resolution by governments before a credit for early action system can be fully operational. In particular:

- the approach to providing baseline protection;
- the precise treatment of past actions relative to future actions, both in terms of baseline protection and credits;
- the level of rigour of the credit creation process;
- the use of credits (i.e., the use of credits will determine the level of greenhouse gas reductions and the level of incentive in the system).

Efficiency and cost effectiveness are key considerations in how and when governments will want to make decisions on "credit". There could be some merit in delaying decisions on implementing a CEA system until other possible measures

(which could prove more cost-effective) are reviewed as part of the national climate change strategy.

Given the complexity and sensitivity of the issues, particularly regarding credit creation,[23] the Table is of the view that there are two possible paths forward:

- an incremental, early-start approach; and
- a more comprehensive but slower approach.

The system could be built incrementally - for example put in place within the next six months but evolving over the next year or two. The system could begin with:

- the discussion and negotiation of an initial set of rules with respect to credit creation, perhaps beginning with a narrow scope and coverage (e.g., including only the large-CO2 emitting sectors);
- possibly some rules with respect to baseline protection; and
- some of the infrastructure necessary for the administration of the system (e.g., registry, reporting, verification, certification).

Some Table members maintained that the fundamental policy issues must be resolved before decisions are made on credit.

The Table considered the nature of the various policy and design issues and the timing of decisions that would be needed to move forward using an incremental, early start approach. For example, a sub-group of the Table proposed that governments should work towards having an operational CEA Office in place this year by focusing on decisions in three areas:

- preparing a "Founding Charter" that would outline the roles and responsibilities of the Office and its institutions and would provide the technical and policy framework that would guide the CEA Office. Critical elements such as baseline protection, credit creation mechanisms, credit budget and end-use would need to be addressed;
- ensuring that the CEA Office and its institutions have the authorities and resources to fulfill these roles and responsibilities; and
- developing an initial set of more detailed operational rules based on the Foundation Charter

Some participants felt strongly that either the existing VCR, Ecogeste or a new store front registry needs to be given priority consideration as a means to begin the process of formalizing data collection regarding actions that could provide emissions reduction. This "preliminary" certainty to factor into investment decision-making as it relates to energy efficiency and GHG reduction would be a useful first step.

[23] The Table recognizes that the issue of credit use must be resolved within the broader context of the overall National Implementation Strategy for Climate Change.

Alternatively, a slower and more comprehensive approach could be adopted. Basically, decisions with respect to credit creation (baseline methodologies) would be taken on an integrated basis in order to ensure greater consistency and fairness in the treatment of participants and non-participants.

Although there was considerable support for a incremental, early-start approach there was no consensus at the Table. While most members recognized the importance of having a credit for early action system in place as "early" as possible, there were concerns that policy and design decisions taken now could prejudice future decisions and potentially undermine the effectiveness of the system.

Annex A - Credit for Early Action Table terms of Reference

Credit for Early Action Table
Terms of Reference

Mandate

The table has been directed by JMM to design options for an early credit system for Canada, to be in place by early 1999.

Background/Status

- Credit for early action has been identified as a key issue in building momentum for the achievement of Canada's GHG reduction commitments. This was a clear message arising from the Canada-US emission trading workshop held in Vancouver on March 17, 1998.

- Early action becomes a more attractive investment when stakeholders are confident that delaying action to reduce emissions is not advantageous. Industry wants a clear signal to that effect. By encouraging early action, Canada's ability to meet its obligations under the Kyoto agreement is facilitated.

- JMM agreed that Canadians must be encouraged to increase their voluntary reductions of greenhouse gas emissions well in advance of the period described in the Kyoto Protocol.

- JMM also recognized that many sectors of the Canadian economy will be more likely to undertake voluntary emission reductions today if they are assured that those actions will be credited against any future obligations. The credited reductions must be measurable and verifiable and credited against future obligations.

Composition

See annex B.

Outputs/Deliverables

- The table will prepare a report on design options in advance of JMM. The report will examine, among other things, the following issues: definitions; start dates; banking; baselines; offsets; reporting; and verification.

- The table will draw on the experience of the two Canadian pilots -- the Greenhouse Gas Emission Reduction Trading (GERT) Pilot and the Pilot Emissions Reduction Trading (PERT) Project.

- The table will also draw on the IISD draft Foundation Paper. It will review the Paper and determine if it wishes to adopt it.

- The table will gather intelligence on related developments in the U.S. and assess implications for Canada.

- Information Gathering, Research, Analysis & Consultation - June to Sept.

- A preliminary report will be prepared to the National Secretariat as input to the next JMM (in the fall of 1998).

- In December 1998 a Final Report will be prepared to the National Secretariat, as input to Energy and Environment Ministers, on how to set up credit for early action system. The purpose is to ensure that a system is in place by early 1999.

Linkages

- This table will link with the International Emissions Trading Table

- A strong linkage will be established with the Voluntary Challenge and Registry

Reporting Relationship

- First meeting of table early June:
  - Finalize the mandate/Establish initial rules of procedure
  - Finalize workplan, including necessary consultants for discrete work/research
  - Prepare a budget
  - Set an initial timetable for meetings
- Co-Chairs will submit proposal to NAICC-CC/National Secretariat for final approval within three weeks of the first table meeting.
- Co-Chairs will provide, as required, status reports to the NAICC on the progress of the work of the table, and ongoing work related to the early action issue.

Annex B - *Credit for Early Action Table Membership*

CREDIT FOR EARLY ACTION TABLE - TIER 1 MEMBERS AND ALTERNATES

April 26, 1999

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April 26, 1999

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Annex C - GLOSSARY

Action	An identifiable measure or combination of measures, the implementation of which results in reduced emissions.
Allocation	A government-issued or agreed emission limit.
Allowance	The most common unit of measurement, or currency, in an allocation system. Quota.
Anthropogenic	Caused or produced by humans.
Audit	Third party evaluation, typically of an operating report or performance claim, undertaken by a qualified professional.
Bank	Save or set aside for future use.
Baseline[24]	In the context of credit creation, the level of emissions beyond which reductions must occur for a credit to be created.
Budget	An emissions limit, whether it applies to a Party, individual or legal entity.
Commodity	Tradable good that is valued in the marketplace on the basis of its end-use and independent of the process by which, where or by whom it is created.
Compliant	Operating within the parameters specified in prescriptive regulation, by contract or by legally enforceable covenant.
Credit *	The certificate representing either GHG emission reductions beyond a baseline or the implementation of actions, and designated by government as having a future use.

[24] Baseline, in the context of baseline protection, refers to the level of emissions that may be used in the allocation of future reduction obligations.

Currency	Certificate or system for creating certificates, enabling cross-commodity trading and valuation. Certificates with same face values may be valued differently in the marketplace, depending on how, where, when and by whom they were created.
Early	Beginning January 1, 1990 until dissolution of the system.
Eligible	Qualified against a specific set of criteria.
Emission	Discharge to the environment.
Entity	An individual or corporation.
Evaluation	Comparison of planned and actual performance of a strategy, program, system, etc.
Greenhouse Gas (GHG)	Any gas substance that is the subject of the Framework Convention on Climate Change and related protocols, treaties, agreements and instruments. For the first commitment period this includes any one of the following six gases or families of gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6).
Measurable	Can be actually and accurately tracked or can be estimated according to a protocol that is generally agreed to produce reliable information about changes in emissions levels and/or rates.
Party	Nation that has ratified the Framework Convention on Climate Change.
Protocol	Agreed and published standard method for measuring, verifying and/or reporting emissions reductions in order to attract credit for early actions.
Quota	Limited right to produce or consume a commodity.
Reduction	Any decrease in GHG emissions resulting from an action, measured in metric tonnes of CO_2 equivalent using global warming potential accepted by the IPCC.

Registry	Record of unique ownership of assets or rights. The record could also include any charges against, limits on use or any other notable characteristics of the assets or rights that might effect their market value.
Strategy	An a priori chosen configuration of principles, goals, means or ways to do things. An overall strategy governs detailed decisions made in program design.
System	A compilation of the organization, structure, responsibilities, practices, procedures, processes and resources required for developing, implementing, reviewing and maintaining the goals of credit for early action.
Trade	Ownership transfer, whether what is transferred is a commodity, right or currency.
Verify	Determine, after the fact, and often on a third party basis, that a reported result has been achieved.
Voluntary	Participation is not legally required.

Survey of Credit for Early Action Systems Outside Canada, prepared for the Credit for Early Action Table by Ellen F. Battle Consulting, November 1998.

The objective of the report is to provide the Credit for Early Action Table with information on early action initiatives to reduce greenhouse gas emissions that are existing or proposed in other jurisdictions.

Volume 1 provides some background information on the concept of early action incentives and the rationale for providing such incentives. A short description and analysis of individual CEA proposals and programs in the United States, including the proposals by the CAST First Movers Coalition, the Centre for Clean Air Policy, the Environmental Defense Fund, and Resources for the Future, among others, is included. The principal elements in the design of early action initiatives/programs are then summarized and discussed. Finally, the author outlines some lessons learned from these initiatives that may be of use in the design of a Canadian early crediting system.

A complete list of the reference material used during the course of the contract work and a list of contacts for the U.S. proposals/programs is provided.

Volume 2 of the report provides more detailed information on nine U.S. proposals and other CEA work.

Linking a Credit for Early Action System to the National GHG Inventory, prepared for the Credit for Early Action Issue Table by D. Cope Enterprises, November 1998

The objective of the report is to evaluate the potential linkages between a credit for early action system and the *National Greenhouse Gas Inventory* (NGHGI). It may be important, for example to ensure the emission factors (plus the process and fuel use parameters) used by industries are the same as those employed to produce the NGHGI estimates. In addition it may be necessary to combine emissions reductions data from individual facility/sector operations in a early crediting system with the NGHGI in order to judge progress toward reaching Canada's GHG target.

The structure of the NGHGI is outlined and the content of the NGHGI, including the source of the data used to create the inventory and the method used to compile the

data (basically a *top down*, or aggregated approach), are summarized. Different types of potential CEA systems are outlined and approaches (usually *bottom up* approaches) that could be used to calculate emissions for specific facilities and to combine these data to determine local, regional, provincial or national inventory information, are assessed.

Through this research, the key elements in the NGHGI system that could serve as a link from the industries, through the CEA system, to the national inventory are identified. In addition, potential barriers to linking the reductions achieved in a system of early crediting with the national inventory and some steps to overcome these barriers are discussed.

Quantifying Greenhouse Gas Reductions,
prepared for the Credit for Early Action Issue Table by Price Waterhouse Coopers, November 1998

The objective of this research is to analyze the existing record of greenhouse gas reductions in order to identify potential "early credit" claims.

The report deals only with the time period 1990-1998; no projections beyond 1998 are made. A sample of results from the Voluntary Challenge and Registry database and from the 20% Club are extrapolated to generate the estimates.

The estimate of 31.8 million tonnes of CO_2E potential "early credit" claims was obtained by comparing the reporting year of 1996/97 with the 1990 base year - 21.4 million tonnes from the VCR records and 10.4 million tonnes from the 20% Club. Calculated cumulatively, year over year for the period 1990 to 1997, the reductions equaled 83.2 million tonnes of CO_2E - 46.8 million tonnes from VCR records and 35.3 million tonnes from the 20% Club.

The many factors that could result in these reductions being over/under estimated, are identified and discussed. Special attention is paid to the rigor of the reporting (i.e., the probability the claims could be verified through audit).